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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,827	07/21/2003	Yonglin Huang	15436.99.1	5769

22913 7590 05/05/2005
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EXAMINER

PAK, SUNG H

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/623,827

Applicant(s)

HUANG ET AL

Examiner

Sung H. Pak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 8-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1103_0404.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

Information disclosure statement filed 11/04/2003 and 4/12/2004 have been considered.

Election/Restrictions

Applicant's election without traverse of Species I, Claims 1-7 in the reply filed on 4/14/2005 is acknowledged. Accordingly, claims 8-28 are withdrawn from consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Li (US 6,836,575 B1).

Li discloses an optical device with all the limitations set forth in the claims, including:
An optical circulator that accomplishes bi-directional communication for use in a fiber optic communications network, the optical circulator comprising: an optically non-reciprocal core through which passes a transmit signal in a transmit direction and a receive signal in a receive direction ('10' Fig. 5a); an input port optically communicating with the core and only delivering the transmit signal, with a well maintained state of polarization, to the core in the transmit

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direction ('510' Fig. 5a); an output port optically communicating with the core and only receiving the receive signal from the core in the receive direction ('530' Fig. 5a), and a network port optically communicating with the core and receiving the transmit signal in the transmit direction and receiving the receive signal in the receive direction ('520' Fig. 5a), wherein, the transmit signal input to the core at the input port is delivered to the network port, and the receive signal input to the core from the network port is output to the output port (Fig. 5a, 6a);

wherein an optical fiber is connected to each of the input, output, and the network ports (Fig. 5a);

wherein the optical fiber and the input port being polarization maintaining (optical fibers are polarization maintaining fibers; see column 6 lines 46-53);

wherein the optically non-reciprocal core comprises: a first optical birefringent wedge optically coupled to the input port and the receive port ('15' Fig. 5a); a Faraday rotator optically coupled to the first birefringent wedge, the Faraday rotator rotating the polarization of the transmit and the receive signal passing therethrough ('16' Fig. 5a-5b); a second optical birefringent wedge optically coupled to the Faraday rotator and to the output port ('17' Fig. 5a); wherein the receive signal passes, in the receive direction, through the second birefringent wedge, the Faraday rotator, and the first birefringent wedge without being refracted (Fig. 6a) and the transmit signal passes, in the transmit direction, through the first birefringent wedge, the Faraday rotator, and the second birefringent wedge and is refracted into the network port (Fig. 5a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,836,575 B1) in view of Liu et al (US 2003/0202729 A1).

Li discloses an optical device with all the limitations set forth in the claims as discussed above, except it does not explicitly teach the use of either non-latching magnetic or latching magnetic material for Faraday rotator, and the use of a Wollaston or a Rochon prism for birefringent material.

On the other hand, the use of non-latching or latching magnetic Faraday rotator and Wollaston or Rochon birefringent prism in optical circulator device is known in the art, for example, as taught by Liu et al (paragraph 0086, 0080). Such elements are considered advantageous and desirable in the art because they provide simple yet precise optical beam

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controlling means that is easy to align and less expensive (paragraph 0007). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Li device to have non-latching or latching magnetic Faraday rotator and Wollaston or Rochon birefringent prism as taught in Liu.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Patent Examiner
Art Unit 2874